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Bryan Cave LLP
1290 Avenue of the Americas
New York, NY 10104-3300
Tel (212) 541-2000
Fax (212) 541-4630
www.bryancave.com

Date: June 8, 2004
From: Gonzalo Merino, Ph.D. Telephone: 212-541-1258
To: Examiner E. Slobodyansky, Ph.D. Fax Number: (571) 273-0941
Art Unit 1652
Company: U.S. Patent and Trademark Office Telephone: (571) 272-0941
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ATTENTION: EXAMINER SLOBODYANSKY

Proposed Claims

In re Application of : Akira ASAKURA, et al.

U.S. Serial No.: 09/712,768

For: **CYTOCHROME C OXIDASE ENZYME COMPLEX**

Docket No.: 20511 US (C038435/0111693)

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****FOR DISCUSSION ONLY - NOT FOR ENTRY ON THE RECORD****

Claim 22. (Currently allowed) A recombinant DNA comprising the polynucleotide sequence of SEQ ID NO: 1.

Claim 23. (Currently allowed) A recombinant DNA comprising a polynucleotide sequence that encodes the amino acid sequence of SEQ ID NO: 2.

Claim 24. (Currently amended) A recombinant DNA comprising a polynucleotide sequence that encodes a polypeptide having an amino acid sequence that is at least 95% ~~85%~~ identical to SEQ ID NO: 2, wherein the polypeptide forms a complex having cytochrome c oxidase activity with a *Gluconobacter oxydans* DSM 4025 cytochrome c oxidase core subunit II.

Claims 25-26 (Cancelled).

Claims 28-29 (Cancelled).

Claim 31. (Currently amended) An expression vector comprising a recombinant DNA according to any one of claims 22-24 ~~26, 28 and 29~~, wherein the expression vector is ~~suitable for expression in an organism.~~

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Claim 33. (Currently amended) An expression vector according to claim 31, wherein the expression vector is a bacterial expression vector.

Claims 34- 37 (Cancelled).

Claim 38. (Currently amended) A host cell ~~recombinant microorganism~~ comprising the expression vector of claim 31.

Claim 39. (Cancelled).

Claim 40. (Currently amended) A host cell ~~recombinant microorganism~~ comprising at least one recombinant DNA according to any one of claims 22-24 ~~26, 28 and 29~~.

Claim 42. (Currently amended) A host cell ~~recombinant microorganism~~ according to claim 40, wherein the host cell microorganism is a bacterium bacteria.

Claim 43. (Currently amended) A host cell ~~recombinant microorganism~~ according to claim 40, which 42, ~~wherein the microorganism~~ is selected from the group consisting of *Escherichia coli*, *Pseudomonas putida*, *Acetobacter xylinum*, *Acetobacter pasteurianus*, *Acetobacter aceti*, *Acetobacter hansenii*, and *Gluconobacter oxydans*.

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Claim 44. (Currently amended) A host cell ~~recombinant microorganism~~ according to claim 40, wherein the host cell ~~is microorganism~~ ~~is obtained from~~ *Gluconobacter oxydans* DSM 4025.

Claim 45. (Cancelled).

Claim 46. (Currently amended) A process for producing a cytochrome c oxidase complex comprising:

- (a) cultivating in a culture medium a host cell ~~recombinant microorganism~~ according to claim 40; and
- (b) recovering a cytochrome c oxidase complex from the culture.

Claim 47. (Currently amended) A process according to claim 46, wherein the host cell ~~recombinant microorganism~~ is a bacterium bacteria.

Claim 48. (Currently amended) A process according to claim 46, wherein the host cell ~~microorganism~~ is selected from the group consisting of *Escherichia coli*, *Pseudomonas putida*, *Acetobacter xylinum*, *Acetobacter pasteurianus*, *Acetobacter aceti*, *Acetobacter hansenii*, and *Gluconobacter oxydans*.

Claim 49. (Currently amended) A process according to claim 46, wherein the host cell ~~is a microorganism~~ ~~is obtained from~~ *Gluconobacter oxydans* DSM 4025.

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Claim 50. (Cancelled).

Claim 57. (Currently amended) A recombinant DNA comprising a polynucleotide sequence that hybridizes to a the complementary strand of SEQ ID NO: 1 under high stringency conditions comprising overnight incubation in 6X SSC, 0.5% SDS, 100 ug/ml denatured salmon sperm DNA, 50% formamide, at 42°C; followed by a first wash in 2X SSC, 0.5% SDS at room temperature for 15 minutes; followed by a second wash in 0.1X SSC, 0.5% SDS at room temperature for 15 minutes, wherein the recombinant DNA encodes a polypeptide that forms a complex having cytochrome *c* oxidase activity with a *Gluconobacter oxydans* DSM 4025 cytochrome *c* oxidase core subunit II.

Claim 60. (Cancelled).

Claim 61. (Currently amended) A recombinant DNA according to claim 24, wherein the complex comprises at least a core subunit I (COI) and a core subunit II (COII), wherein the apparent molecular masses of COI and COII are about 43 ± 10 kDa and 36 ± 10 kDa, respectively as determined by SDS-PAGE and the complex has displays an absorption spectrum with a showing an aa3-type cytochrome c oxidase peak at 605 ± 1 nm in a reduced minus oxidized difference spectrum.

Claim 62. (Cancelled).

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Claim 63. (Currently amended) A recombinant DNA according to claim 24, wherein core subunit II comprises SEQ ID NO: 4.

Claims 64-72. (Cancelled).

Claim 73. (Currently amended) An expression vector comprising a ~~at least one~~ recombinant DNA according to claim 61 ~~any one of claims 61, 65 and 69.~~

Claims 74-75. (Cancelled).

Claim 76. (Currently amended) A host cell ~~recombinant microorganism~~ comprising a ~~at least one~~ recombinant DNA according to claim 61 ~~any one of claims 61, 65 and 69.~~

Claims 77-80. (Cancelled).